

New Jersey's Manufacturing Industry Cluster

Prepared by:
New Jersey Department of Labor & Workforce Development
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STATE OF NEW JERSEY
DEPARTMENT OF LABOR AND
WORKFORCE DEVELOPMENT



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The goal of this report is to get an “IDEA” of what manufacturing means to New Jersey

Identify the types of industries and establishments that make up the manufacturing cluster based on a standard industry classification system

Describe any similarities and differences among its components with regard to such variables as employment, wage, occupation type, education, and demographic characteristics

Examine any present distinctions within the cluster and its components that give New Jersey a competitive advantage compared to neighboring states, regions or the nation, or show areas where New Jersey could improve to add to the state's economy

Analyze the current state of the manufacturing cluster and provide an outlook for employment into the future

New Jersey Manufacturing Highlights

- The manufacturing industry cluster contributed \$54 billion to the Gross Domestic Product in 2020, or about 10.1 percent of all output
- In 2020, New Jersey employed 44,400 people in chemical manufacturing, the state's largest segment of manufacturing, which ranks fifth among states behind only Texas, California, Illinois, and Ohio
- Average wages paid in many manufacturing industries are well above the statewide private sector average of \$74,000 in 2020
- Manufacturing employers paid greater than \$20 billion in total wages in 2020, or about 8.6 percent of all wages paid

Overview

There were nearly 9,000 establishments in New Jersey that employed nearly 236,000 people in the manufacturing sector in 2020. Employment is scattered throughout the state and found in places ranging from very large pharmaceutical firms to much smaller machine shops. These establishments are generally found in the Northeastern part of the state and also along the Interstate 95 corridor.

The occupational composition within manufacturing industries is continuously changing as more technical skills are required to operate more advanced processes. The expectation of higher skills has resulted in many higher paying jobs, especially among chemical manufacturing firms.

According to the U.S. Census Bureau's 2019 American Community Survey, the profile of the average New Jersey resident worker is generally older than average and male. Nearly 57 percent of the workforce is aged 45 and over. Racially, it is more diverse than average, especially among the Asian population. The workforce is highly educated, as greater than 44 percent having attained at least a bachelor's degree.

New Jersey hosts a wide range of manufacturing processes from food and printing to petroleum and pharmaceuticals

chemical
glass products
electronics machinery
breweries aerospace textiles petroleum
cabinetry
bakeries pharmaceuticals
industrial machinery printing wineries
plastics defense
cement products
food & beverage
medical devices

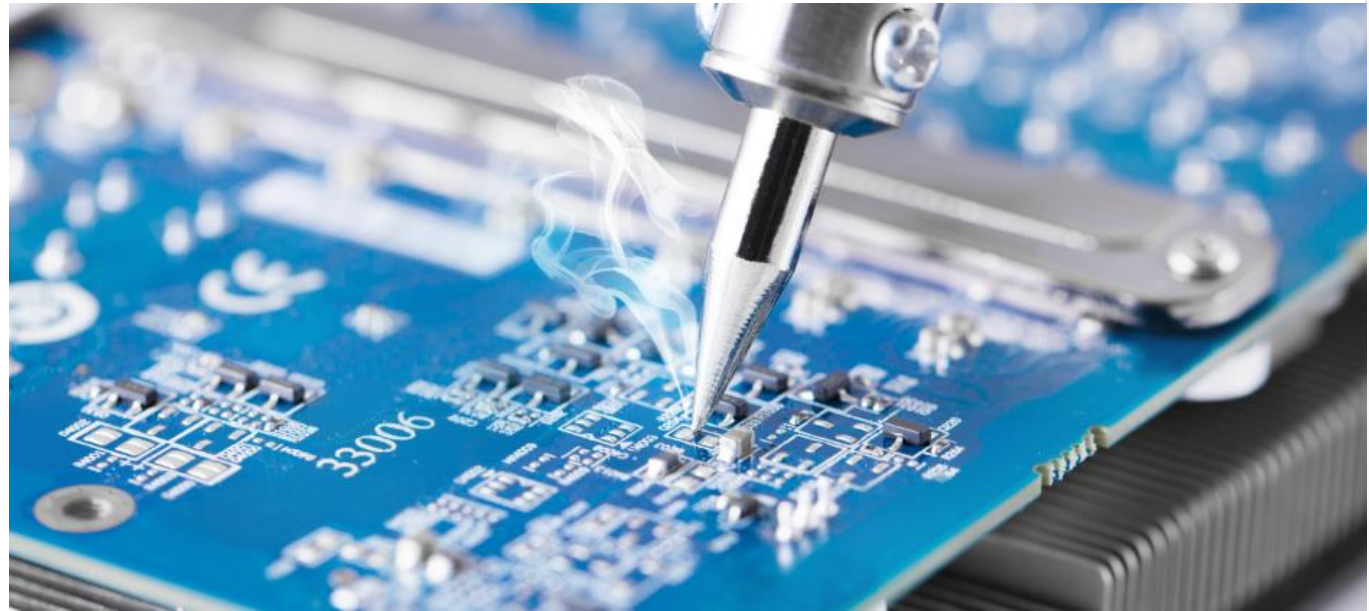


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ECONOMIC IMPACT



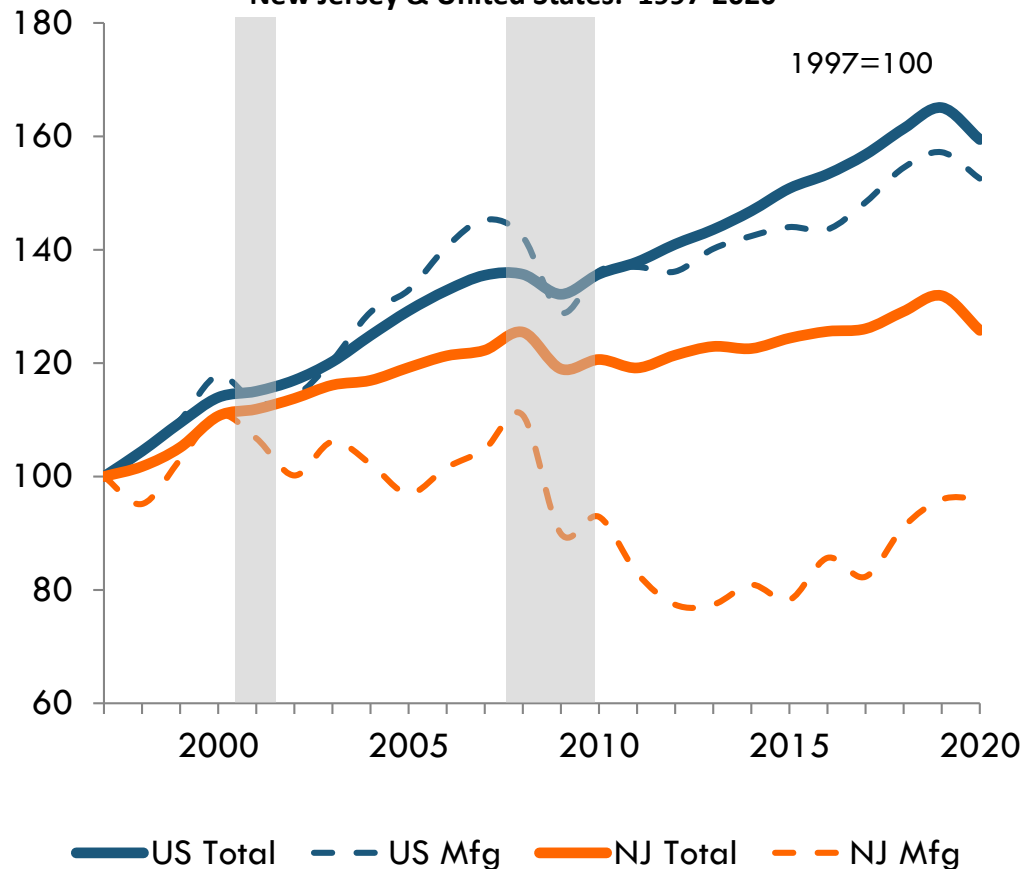
GDP growth in New Jersey has averaged one percent per year from 1997 to 2020, and now exceeds half of a trillion dollars

Over the same period, the national GDP has increased at twice the NJ rate

The Great Recession from 2007-2009 deeply affected the manufacturing sector at the state and national level

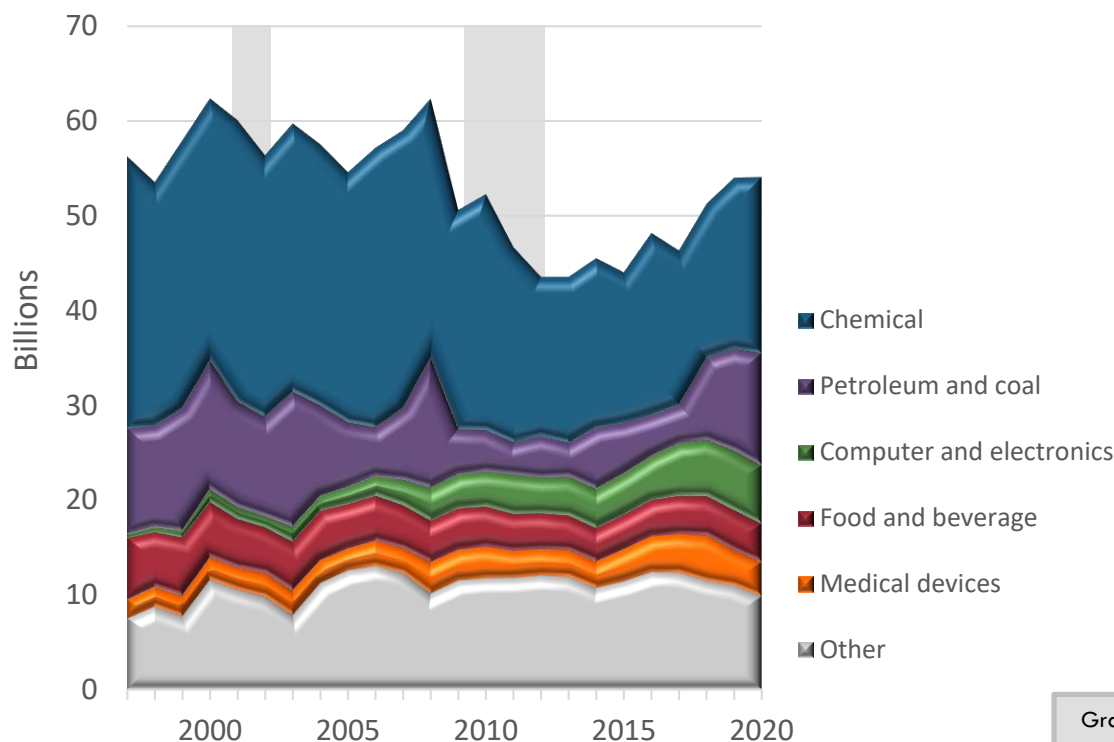
Since hitting recent lows in 2013, New Jersey's manufacturing sector has steadily rebounded, and in 2020 contributed more than \$54 billion to the state's GDP

Gross Domestic Product Index (Chained 2012 Dollars)
New Jersey & United States: 1997-2020



Output produced from the chemical manufacturing sector dominates GDP output among manufacturing industries

Gross Domestic Product by Manufacturing Segment
New Jersey: 1997-2020



Chemical manufacturing accounted for 51 percent of manufacturing GDP in 1997 (\$28.7 billion), but only 34 percent in 2020 (\$18.5 billion)

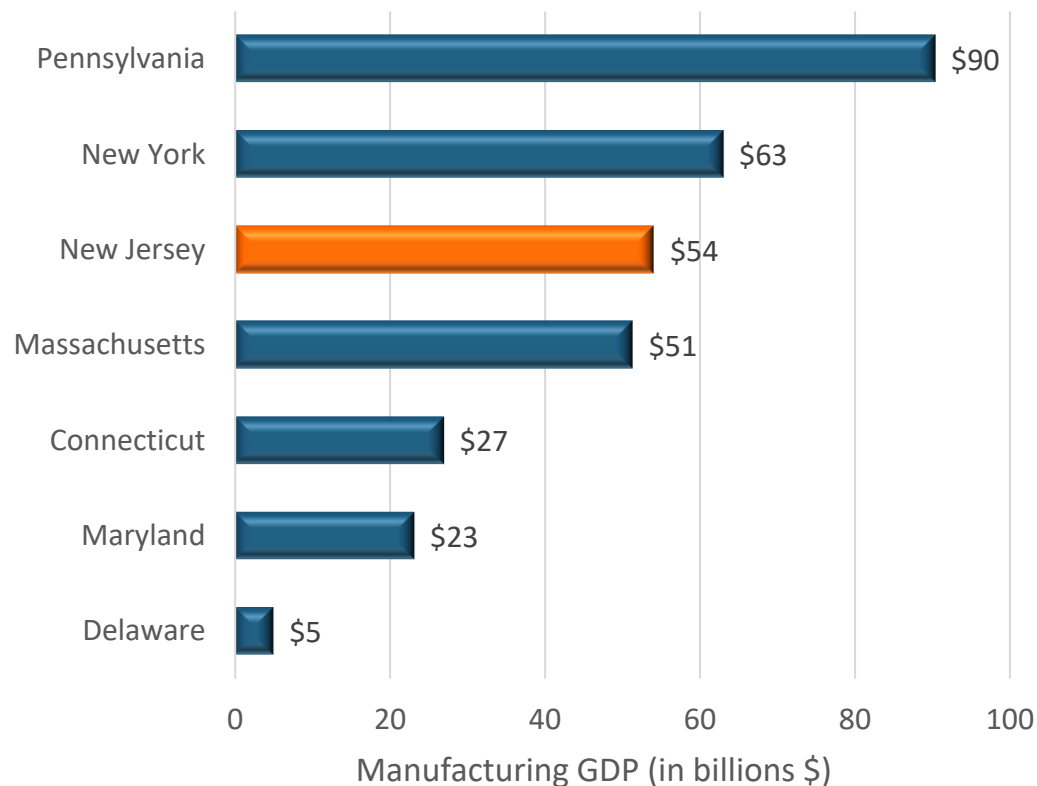
Computer and electronic products manufacturing has been the fastest growing industry among this group, increasing its GDP from \$464 million in 1997 to \$6.1 billion in 2020, and now contributes the third highest output of GDP in New Jersey

Medical device manufacturing has nearly doubled its output since 1997 to nearly \$4 billion in 2020

Gray area denotes U.S. economic recession as defined by the National Bureau of Economic Research (NBER)

Nearly 2 of every 10 dollars of output generated by manufacturing in the United States occurs in these seven Northeastern states

Gross Domestic Product Generated from Manufacturing
Selected Northeast states, 2020



New Jersey ranks third among these states in the region with GDP from manufacturing exceeding \$54 billion in 2020

Chemical manufacturing is the primary contributor in the tri-state area (NJ, NY & PA) and combined accounts for nearly 15 percent (\$49 billion) of all chemical manufacturing GDP in the US

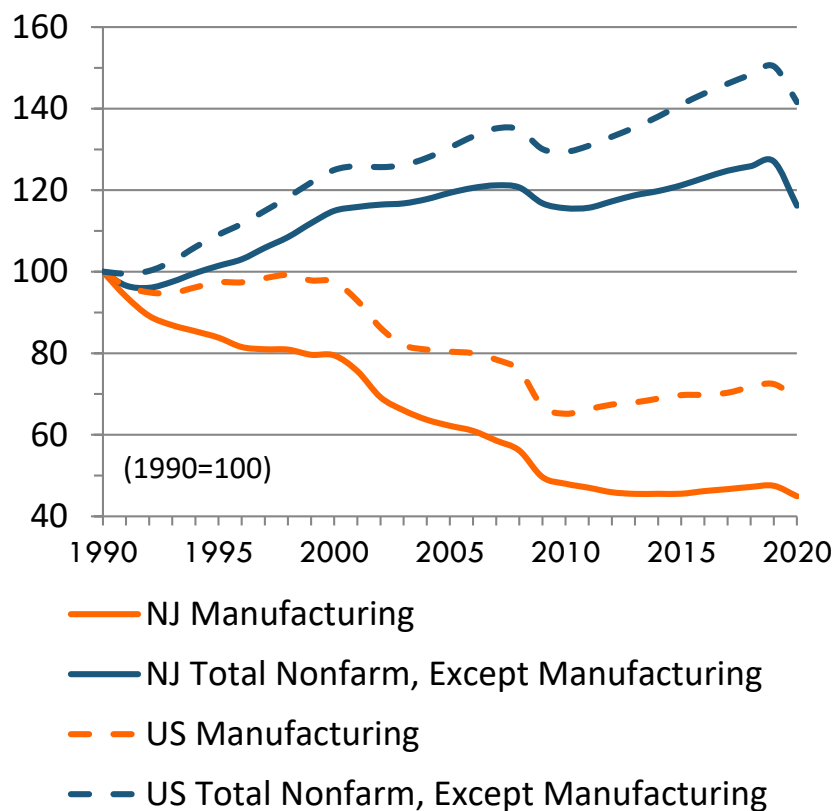
Data shows that Massachusetts and New Jersey are also leaders in the region in medical device manufacturing

INDUSTRY ANALYSIS



Manufacturing employment remained steady in 2020 while the rest of the economy declined sharply

Employment: Manufacturing vs. All “other” Industries
New Jersey & United States: 1990-2020



Manufacturing has lost 291,400 jobs in New Jersey since 1990, a 2.6 percent annual decline, while the nation has declined at a 1.2 percent annual rate, shedding roughly 5.5 million jobs

The “other” non-agricultural industries grew by an annual average of 0.5 percent posting a net gain of 502,800 jobs in New Jersey, while the United States added over 38 million jobs, an average gain of 1.2 percent per year

New Jersey had added manufacturing jobs for six consecutive years before a slight downturn in 2020, reversing a trend of consistent annual losses

Manufacturing employment in New Jersey has declined from 14.6 percent of all jobs in 1990 to 6.2 percent in 2020

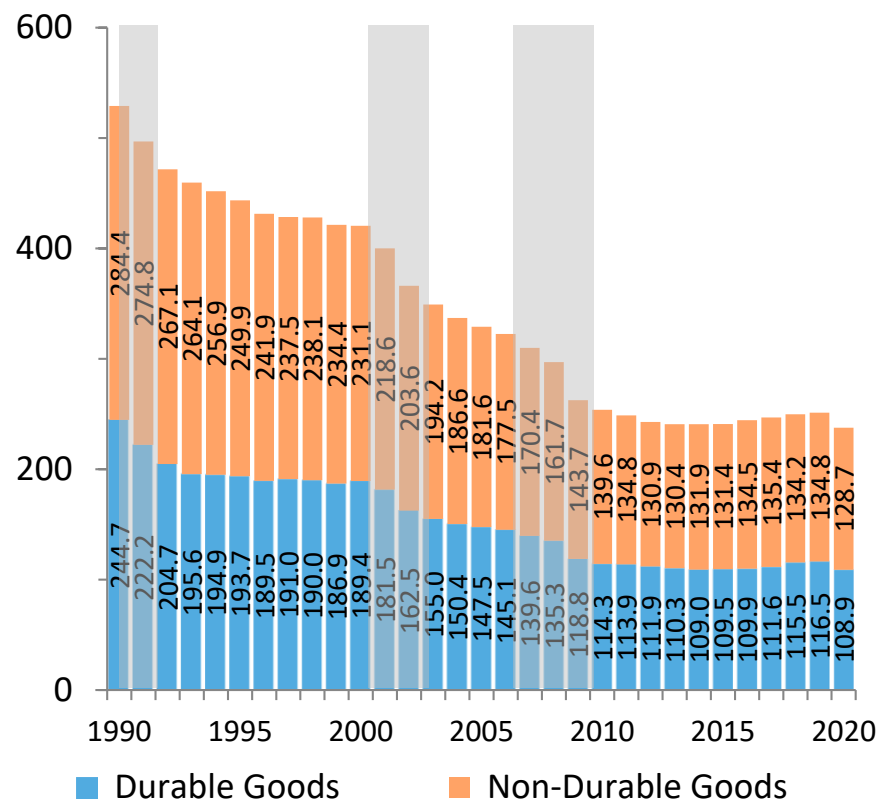
Nationally, manufacturing's share of total employment has declined from 16.2 percent in 1990 to 8.6 percent in 2020

Widespread and consistent losses among industries that manufacture both durable and non-durable goods have resulted in each declining by an average annual rate of 2.6 percent

During the six worst years for manufacturing employment in New Jersey ('91-'92, '01-'03, '09), more than 163,000 of the 277,600 total jobs losses occurred, an average rate of decline of more than 6 percent per year

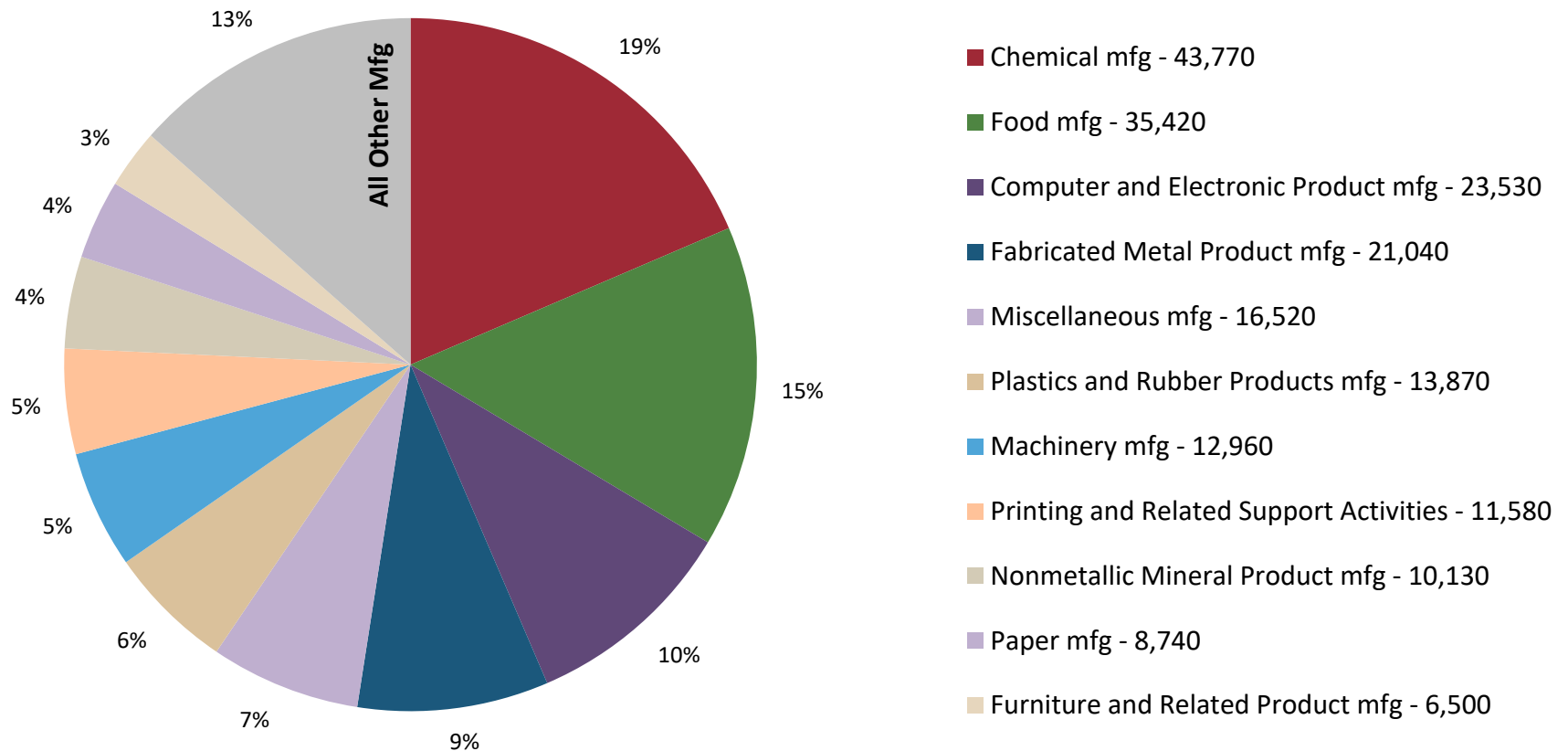
Gray area denotes U.S. economic recession as defined by the National Bureau of Economic Research (NBER)

Employment (000s) breakdown
Durable vs. Non-durable Goods
New Jersey: 1990-2020



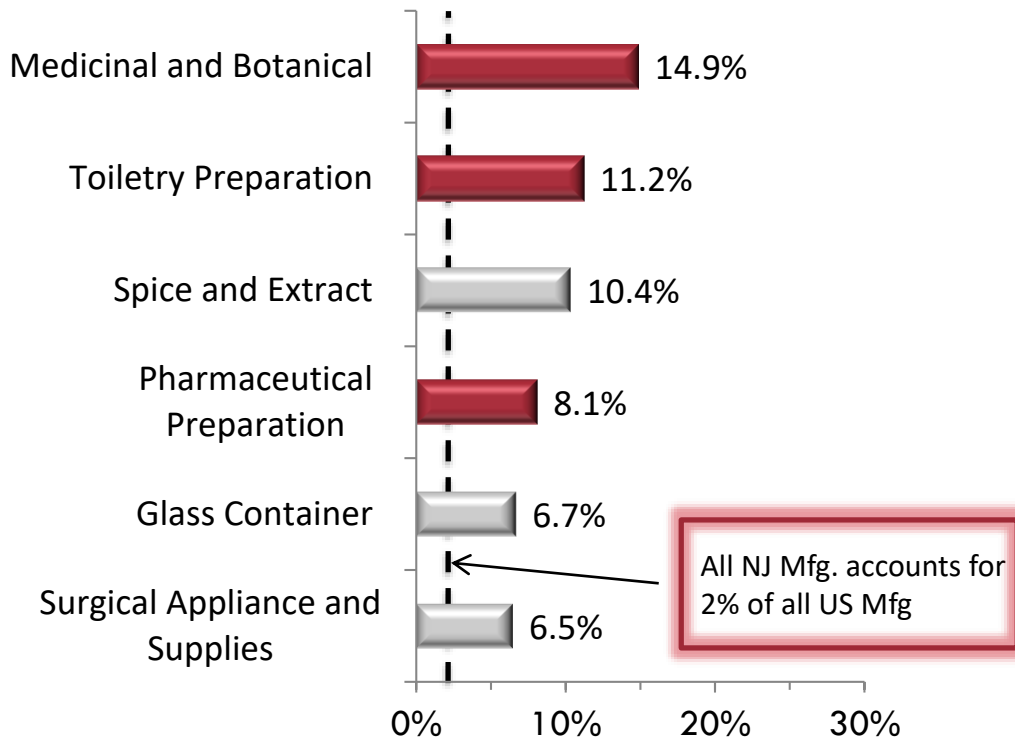
The chart below shows the distribution of all manufacturing employment across its many different industries

All Manufacturing Industries as a Percentage of Total Manufacturing in New Jersey: 2020



These industries each employ a disproportionately high number of people in New Jersey and are among the manufacturing industries that define the state in 2020

New Jersey Employment as a
Percentage of the nation: 2019



Chemical manufacturing in New Jersey, where three of the six industries on this list are classified, accounts for 5.2 percent of chemical manufacturing employment in the nation

Glass container manufacturing remains a prevalent industry in the Southern counties of the state

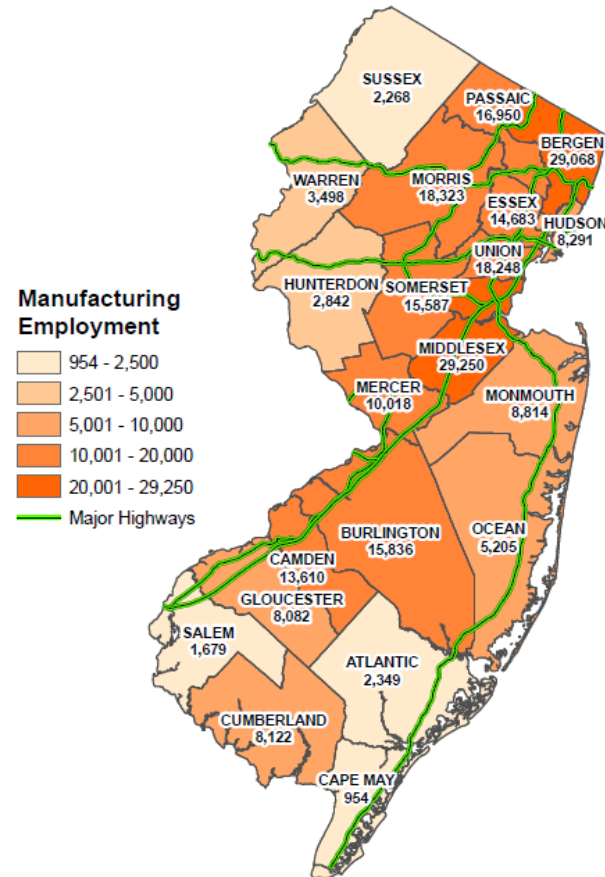
New Jersey is one of the world leaders in surgical appliances and supplies manufacturers

Employment in manufacturing is highly concentrated in New Jersey's most populous counties and along the Interstate 95 corridor...

New Jersey offers unique business advantages including:

- geographic proximity to roughly 40 percent of the US population, or around 100 million potential consumers
- highly educated and very diverse workforce
- extensive transportation network in place to carry goods by land, air, and sea

**Manufacturing Employment
New Jersey, 2020**



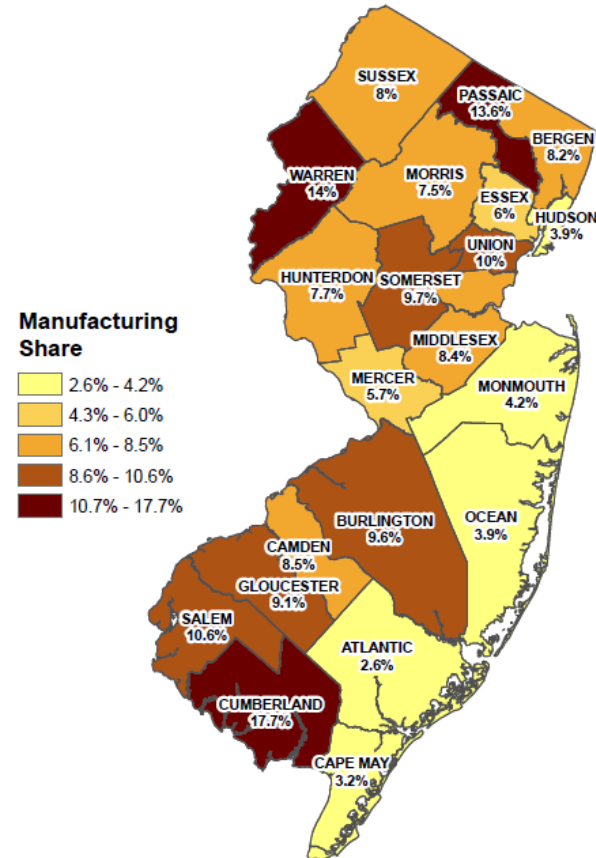
...however, manufacturing in many of New Jersey's more sparsely populated counties make up a larger percentage of total private sector employment

Cumberland County has the largest share of manufacturing of total employment at nearly 18 percent

Bergen, Morris, Middlesex, and Somerset Counties have a large a diverse mix of manufacturing industries

In the four coastal counties of Monmouth, Ocean, Atlantic, and Cape May, less than 4 percent of private sector employment is classified as manufacturing

*Manufacturing Employment as a Share of Total Private Employment
New Jersey, 2020*

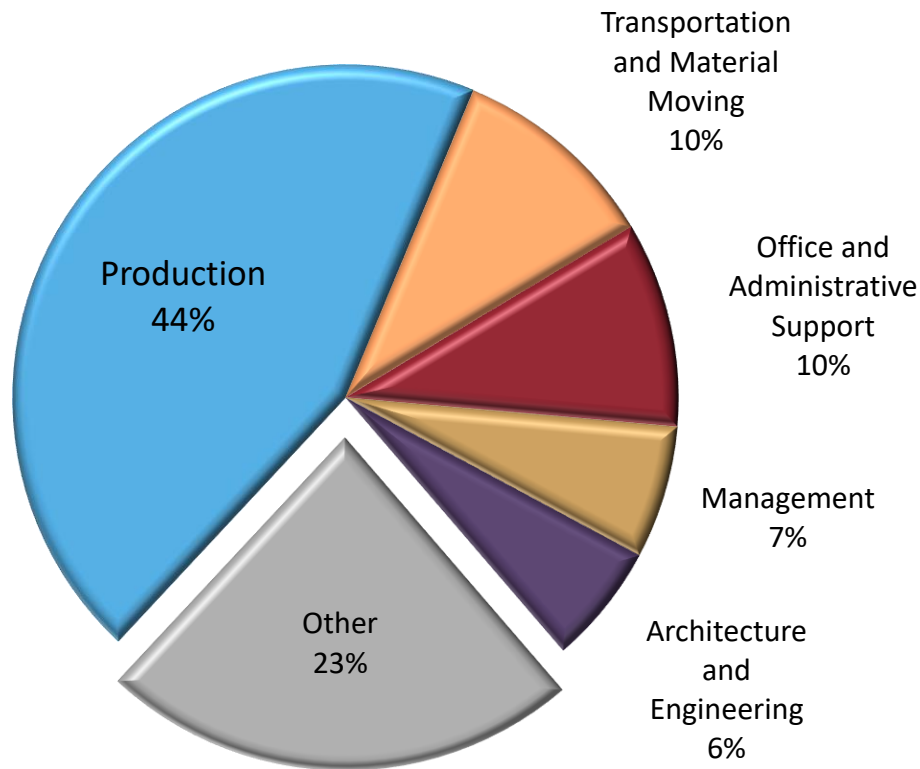


OCCUPATIONAL ANALYSIS



Nearly 80 percent of all manufacturing jobs are classified into these five groups

Breakdown of Major Occupational Groups within
Manufacturing Industry:
New Jersey, 2020



Nearly half of all manufacturing workers are directly involved with production

Roughly 11 percent of workers are classified in STEM occupations

The “other” 23 percent of manufacturing occupations primarily consists of business, sales and other profession and service occupations

Ten of the top occupations found in the manufacturing sector are classified as **production** workers

Occupation	2020 Employment	Share of Industry	2020 Average Salary	Minimum Educational Requirements
Total, All Manufacturing Occupations	233,120	100.0%	\$62,870	
Top 20 Occupations	96,370	41.3%		
Assemblers and Fabricators	8,830	3.8%	\$34,810	High school diploma or equivalent
Supervisors of Production Workers	8,170	3.5%	\$73,570	High school diploma or equivalent
Packaging and Filling Machine Operators	8,040	3.4%	\$35,750	High school diploma or equivalent
Inspectors, Testers, Sorters, Samplers, and Weighers	6,710	2.9%	\$43,880	High school diploma or equivalent
Laborers of Freight and Stock	6,320	2.7%	\$35,790	No formal educational credential
Wholesale Sales Representatives	5,690	2.4%	\$97,850	High school diploma or equivalent
Packers and Packagers, Hand	5,060	2.2%	\$29,680	No formal educational credential
Industrial Machinery Mechanics	4,780	2.1%	\$61,720	High school diploma or equivalent
Chemical Equipment Operators	4,360	1.9%	\$55,640	High school diploma or equivalent
Electromechanical assemblers	4,320	1.9%	\$38,070	High school diploma or equivalent
Shipping, Receiving, and Inventory Clerks	4,030	1.7%	\$40,100	High school diploma or equivalent
Customer Service Representatives	3,790	1.6%	\$47,550	High school diploma or equivalent
Industrial Truck and Tractor Operators	3,720	1.6%	\$38,100	No formal educational credential
Machinists	3,560	1.5%	\$52,610	High school diploma or equivalent
Industrial Engineers	3,460	1.5%	\$98,790	Bachelor's degree
Industrial Production Managers	3,380	1.4%	\$139,960	Bachelor's degree
General and Operations Managers	3,300	1.4%	\$198,060	Bachelor's degree
Paper Goods Machine Operators	3,120	1.3%	\$35,020	High school diploma or equivalent
Cutting, Punching, and Press Machine Operators	3,010	1.3%	\$35,820	High school diploma or equivalent
Mixing and Blending Machine Operators	2,720	1.2%	\$45,290	High school diploma or equivalent



Greater than one-quarter of the occupations in the manufacturing sector have moderate to high educational requirements for entry

Total Number of Employment in Manufacturing by Minimum Education Requirement New Jersey, 2020

Minimum Education Requirement	2020 Employment	% of Total
Total, All Manufacturing	233,120	100.0%
Total High Requirements	48,640	20.9%
Master's or higher degree	1,000	0.4%
Bachelor's degree	47,640	20.4%
Total Moderate Requirements	11,920	5.1%
Associate's degree	5,550	2.4%
Postsecondary nondegree award	3,170	1.4%
Some college, no degree	3,200	1.4%
Total Low Requirements	166,140	71.3%
High school diploma or equivalent	129,620	55.6%
No formal educational credential	36,520	15.7%

Nearly one-third of the employment that requires at least a Bachelor's degree are classified as scientists and engineers

Although the majority of employment in manufacturing may not require postsecondary education for entry, the tradespeople and production workers that comprise this group often have many years of experience, and may have completed an apprenticeship or extensive on-the-job training program



SUBSECTOR DETAILS



Food Manufacturing

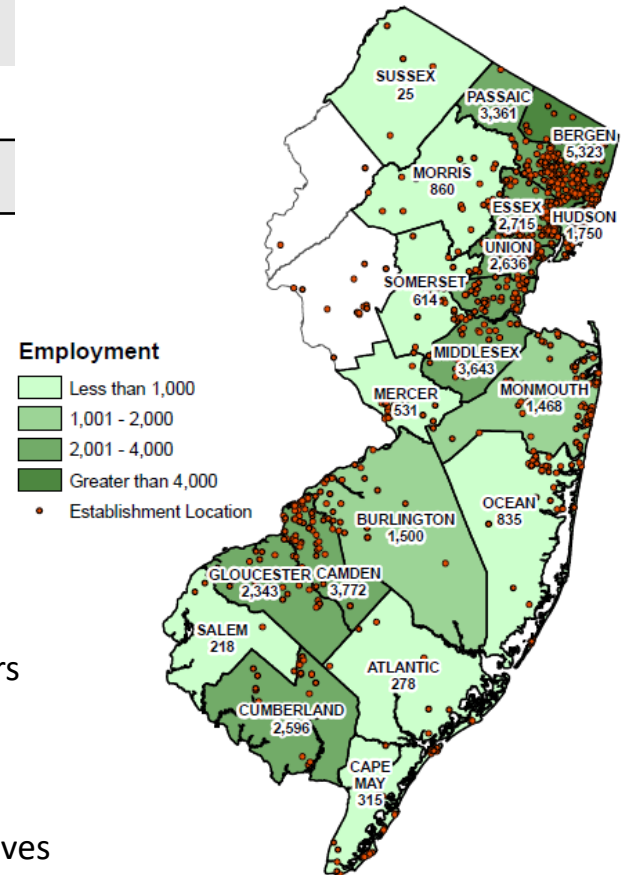
	Establishments	Employment	Employment Per Establishment
2015	1,096	31,508	29
2020	1,272	35,418	28
Change	+176	+3,910	+1

The food manufacturing industry has added nearly 4,000 jobs over the past five years, and has large concentrations in Bergen and Camden Counties

Key Occupations include:

- Food Batchmakers
- Bakers
- Packaging and Filling Machine Operators
- Industrial Machinery Mechanics
- Forklift Operators
- Inspectors, Testers, Sorters and Samplers
- Food Scientists and Technologists
- Whole Sales Representatives

Food Manufacturing Employment and Establishment Locations New Jersey, 2020



Chemical Manufacturing

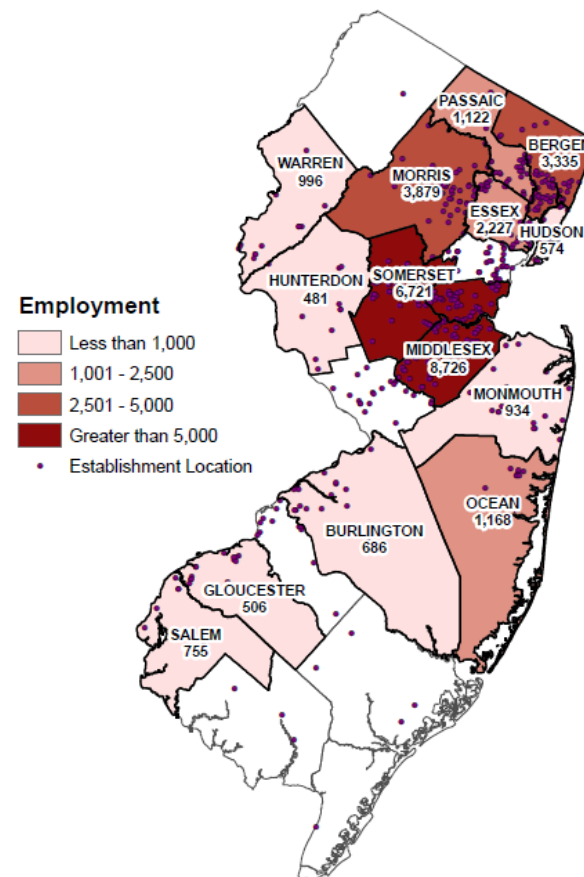
	Establishments	Employment	Employment Per Establishment
2015	809	43,173	53
2020	874	43,774	50
Change	+65	+601	-3

The chemical manufacturing industry has strong concentrations along the Route 1 corridor, particularly in Middlesex, Somerset, and Union Counties

Key Occupations include:

- Chemists
- Chemical Equipment Operators
- Mixing and Blending Machine Operators
- Chemical Technicians
- Industrial Machinery Mechanics
- Industrial Engineers
- Compliance Officers
- Whole Sales Representatives

Chemical Manufacturing Employment and Establishment Locations New Jersey, 2020



Computer and Electronic Product Manufacturing

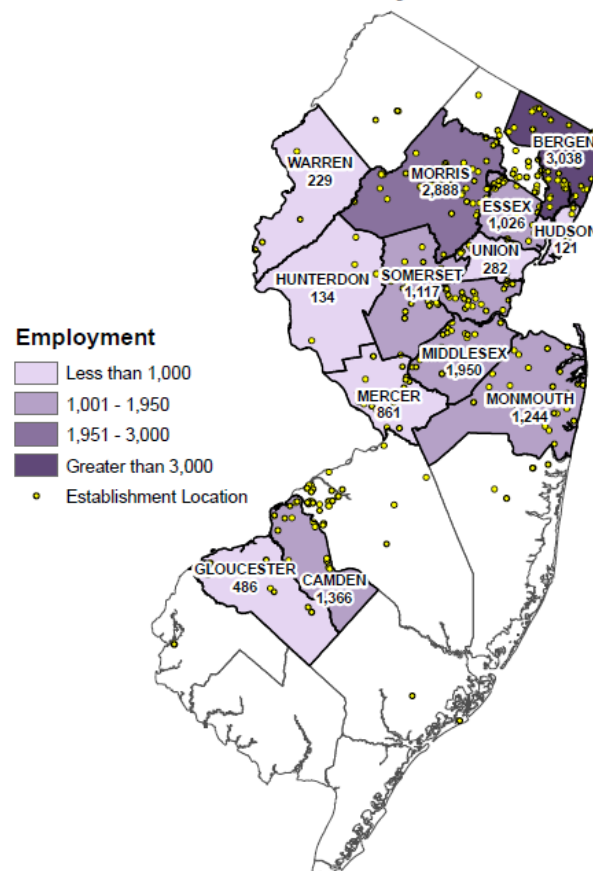
	Establishments	Employment	Employment Per Establishment
2015	689	22,978	33
2020	703	23,531	33
Change	+14	+553	-

The computer and electronic product manufacturing industry has maintained steady employment, and is prevalent in Bergen, Camden, and Morris Counties

Key Occupations include:

- Electrical and Electronic Assemblers
- Electrical Engineers
- Software Developers
- Industrial Machinery Mechanics
- Mechanical Engineers
- Buyers and Purchasing Agents
- Aerospace Engineers
- Whole Sales Representatives

*Computer & Electronic Product Manufacturing
Employment and Establishment Locations
New Jersey, 2020*



Fabricated Metal Product Manufacturing

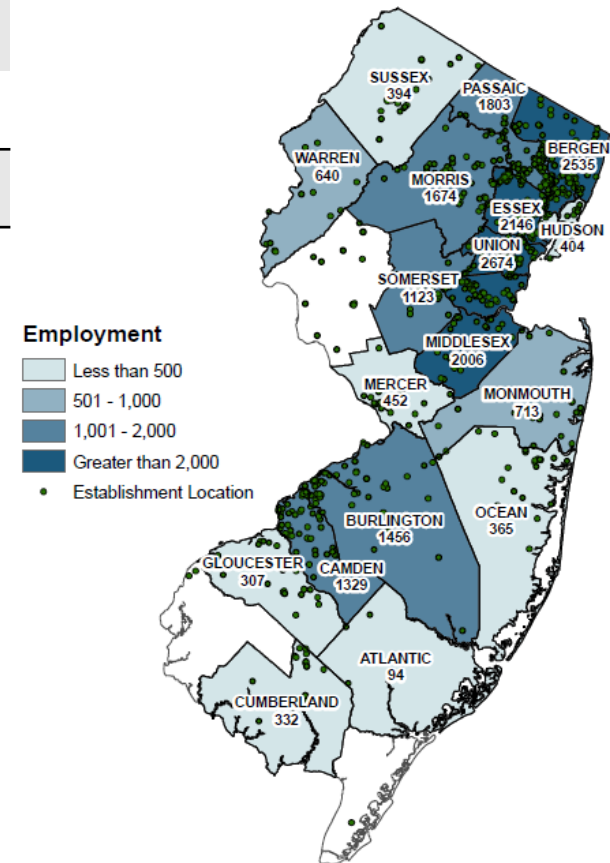
	Establishments	Employment	Employment Per Establishment
2015	1,136	20,003	18
2020	1,131	21,036	19
Change	-5	+1,033	+1

The fabricated metal product manufacturing industry has added 1,000 jobs since 2015, and has concentrations nearest Philadelphia and New York City

Key Occupations include:

- Machinists
- Welders, Cutters, Solderers, and Brazers
- Assemblers and Fabricators
- Industrial Machinery Mechanics
- Forklift Operators
- Inspectors, Testers, Sorters and Samplers
- Cutting, Punching, and Press Machine Operators
- Sheet Metal Workers

*Fabricated Metal Manufacturing Employment and Establishment Locations
New Jersey, 2020*



Medical Device Manufacturing

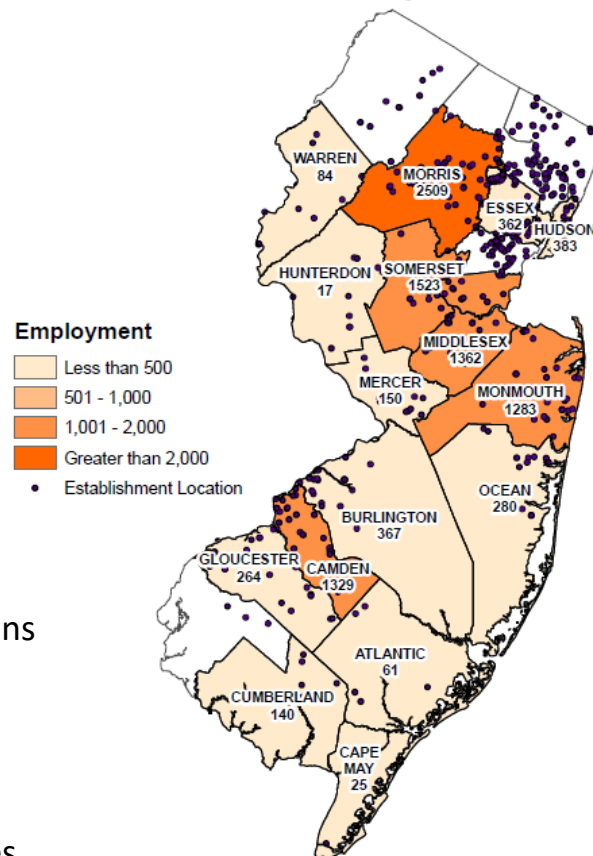
	Establishments	Employment	Employment Per Establishment
2015	390	11,862	30
2020	353	11,045	31
Change	-37	-817	+1

The medical device manufacturing industry employed 11,000 people in 2020, and nearly one-third of its employment is found in Bergen County

Key Occupations include:

- Medical Appliance Technicians
- Bioengineers and Biomedical Engineers
- Inspectors, Testers, Sorters and Samplers
- Industrial Engineers
- Dental Laboratory Technicians
- Computer-Controlled (CNC) Machine Tool Operators
- Production, Planning, and Expediting Clerks
- Whole Sales Representatives

*Medical Device Manufacturing Employment and Establishment Locations
New Jersey, 2020*



DEMOGRAPHIC PROFILE



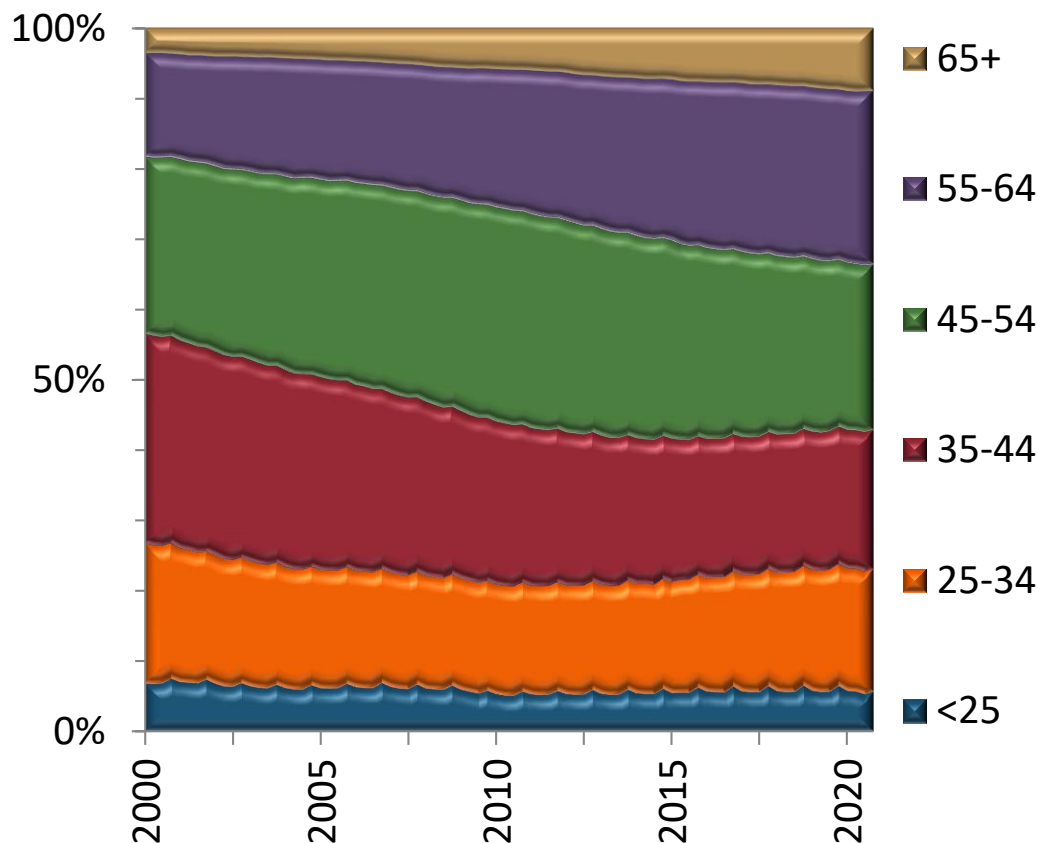
Data shows a steady and gradual change toward an older workforce in nearly every age cohort

The workforce aged 65 and older has nearly tripled its share of total employment from 3 percent to almost 9 percent from 2000 to 2020

Over the past 20 years, the fastest growing age cohort has been 55-64 years old while the group aged 35-44 has declined the most

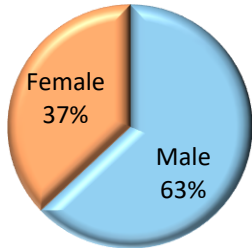
The share of the manufacturing workforce under the age of 35 has decreased over the last 20 years from 27 percent to 23 percent

Breakdown of Workforce by Age
New Jersey: 2000-2020

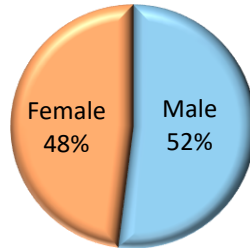


Gender, racial, and ethnic profile of New Jersey residents working in manufacturing industries

Manufacturing



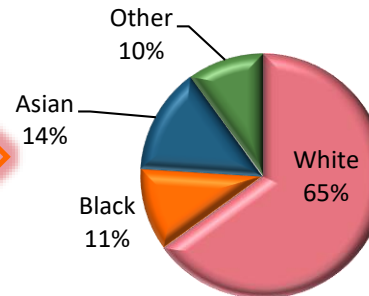
All Industries



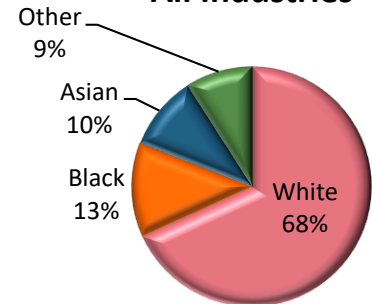
The manufacturing workforce is predominantly male

The Asian population makes up a larger portion of the manufacturing workforce than the overall economy

Manufacturing

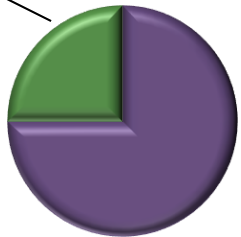


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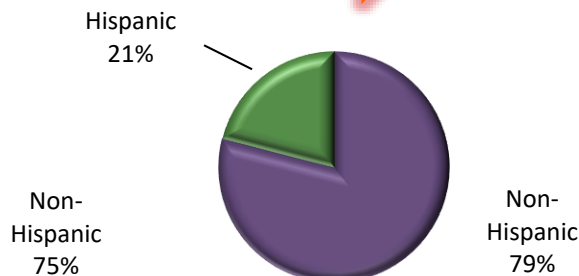


The Hispanic population is slightly less among manufacturing industries

Manufacturing



All Industries

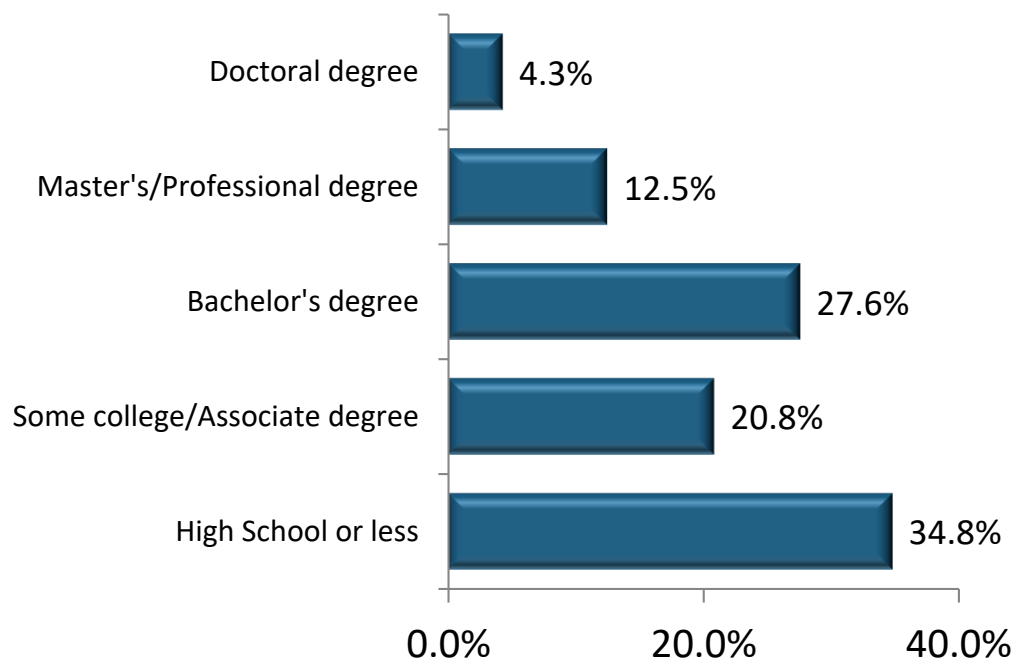


Self-reported educational attainment and average wage of NJ residents in the manufacturing workforce

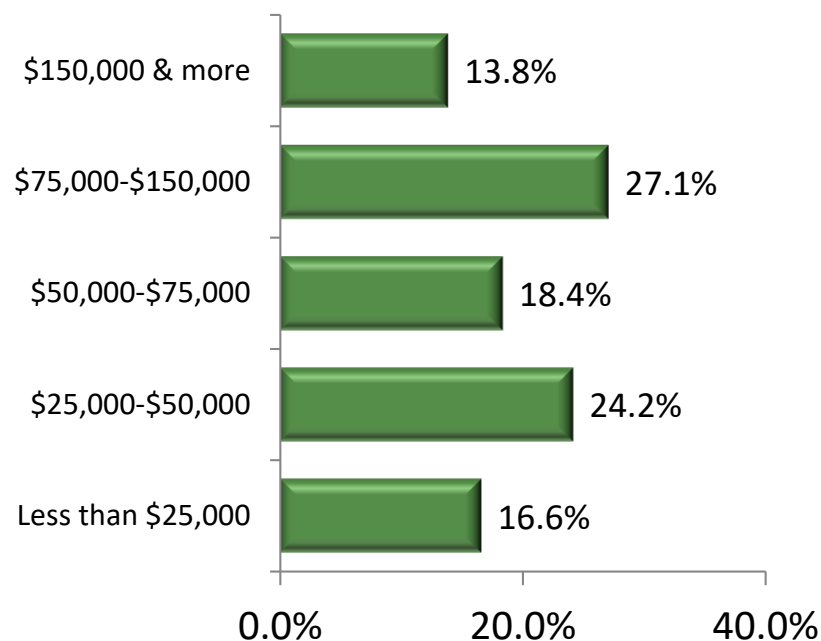
Nearly 45 percent of the workforce reported that they have earned at least a bachelor's degree, and...

...nearly 60 percent of the workforce claimed to have earned wages above \$50,000

Education Level



Average Wage



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